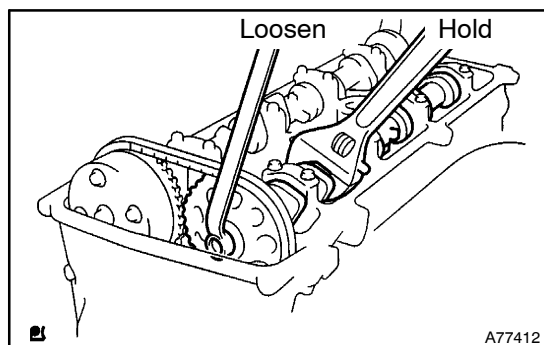


CAMSHAFT (2AZ-FE)

REPLACEMENT

14158-01

1. REMOVE FRONT WHEEL RH
2. REMOVE ENGINE UNDER COVER RH
3. REMOVE COWL TOP VENTILATOR LOUVER CENTER NO.1
(See Pub. No. RM864E, page 66-9)
4. REMOVE FRONT WIPER ARM HEAD CAP
5. REMOVE FR WIPER ARM LH (See Pub. No. RM864E, page 66-9)
6. REMOVE FR WIPER ARM RH (See Pub. No. RM864E, page 66-9)
7. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSY (See Pub. No. RM864E, page 66-9)
8. REMOVE WIPER LINK ASSY (See Pub. No. RM864E, page 66-9)
9. REMOVE COWL TOP PANEL SUB-ASSY OUTER (See page 10-16)
10. REMOVE ENGINE COVER SUB-ASSY NO.1
(a) Remove the 2 nuts, then remove the engine cover No. 1.
11. REMOVE IGNITION COIL ASSY
(a) Disconnect the 4 connectors.
(b) Remove the 4 bolts, then remove the 4 ignition coils.
12. SEPARATE VENTILATION HOSE
13. SEPARATE VENTILATION HOSE NO.2
14. REMOVE CYLINDER HEAD COVER SUB-ASSY (See page 14-41)
15. SET NO. 1 CYLINDER TO TDC/COMPRESSION (See page 14-41)
16. REMOVE CHAIN TENSIONER ASSY NO.1 (See page 14-41)

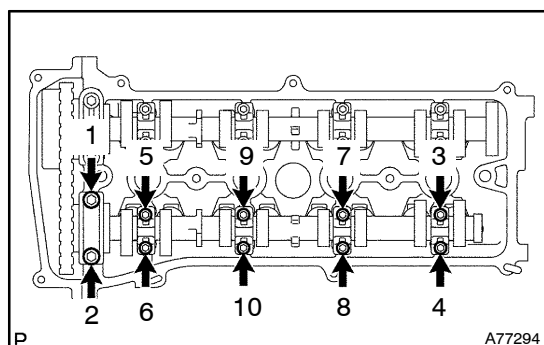


17. REMOVE NO.2 CAMSHAFT

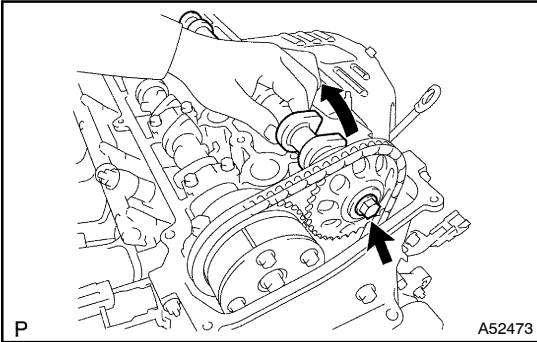
- (a) Hold the No. 2 camshaft with a wrench on the hexagonal lobe, then loosen the camshaft timing gear set bolt.

NOTICE:

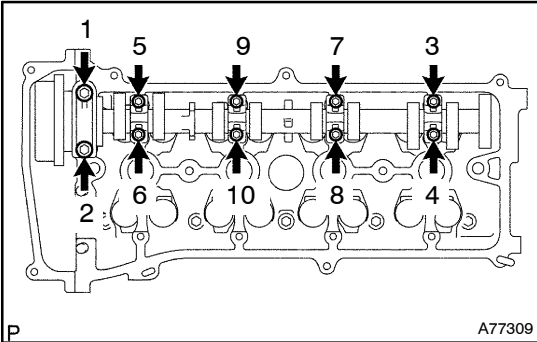
Be careful not to damage the cylinder head and valve lifter with the wrench.



- (b) Using several steps, loosen and remove the 10 camshaft bearing cap bolts uniformly in the sequence shown in the illustration.
- (c) Remove the 5 camshaft bearing caps.

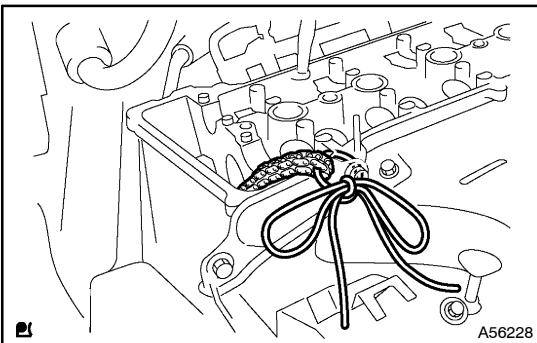


- (d) Raising the No. 2 camshaft, remove the set bolt.
- (e) Remove the camshaft timing gear from the No. 2 camshaft with the timing chain wrapped.
- (f) Remove the camshaft timing gear from the timing chain.



18. REMOVE CAMSHAFT

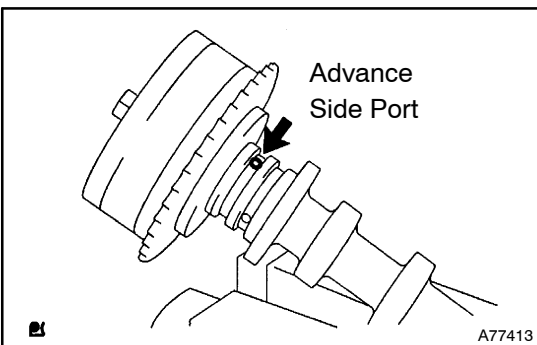
- (a) Using several steps, loosen and remove the 10 camshaft bearing cap bolts uniformly in the sequence shown in the illustration.
- (b) Remove the 5 camshaft bearings.
- (c) Remove the camshaft.



- (d) Tie the timing chain as shown in the illustration.

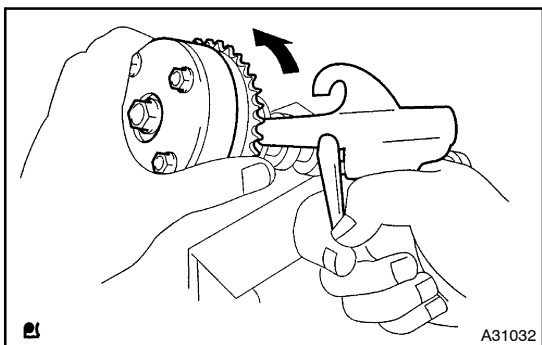
NOTICE:

- **Be careful not to drop anything inside the timing chain cover.**
- **Do not expose the chain to water and dust.**



19. REMOVE CAMSHAFT TIMING GEAR ASSY

- (a) Clamp the camshaft in a vise, then make sure the camshaft timing gear does not rotate.
- (b) Cover all the oil ports with vinyl tape except an advance side port shown in the illustration.



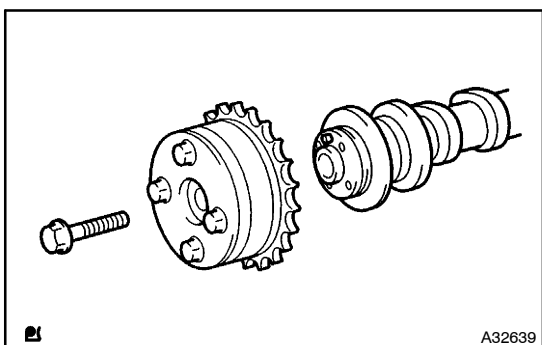
- (c) Put air pressure into the oil port with 150 kpa (1.5 kgf/cm² 21 psi), then turn the camshaft timing gear to the advance direction (counterclockwise) with hand.

CAUTION:

Cover the ports with shop rag to avoid oil splashing.

HINT:

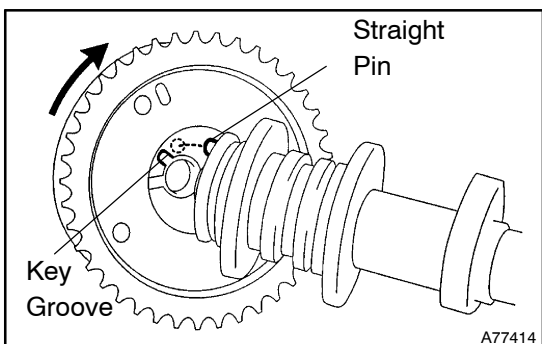
Depending on the air pressure, the camshaft timing gear will turn to the advance angle side without applying force with hand. Also, under the condition that the pressure can be hardly applied because of the air leakage from the port, there may be the case that the lock pin could be hardly released.



- (d) Remove a fringe bolt of camshaft timing gear.

NOTICE:

- **Be sure not to remove the other 4 bolts.**
- **When reusing the camshaft timing gear, release the straight pin lock first, then install the gear.**

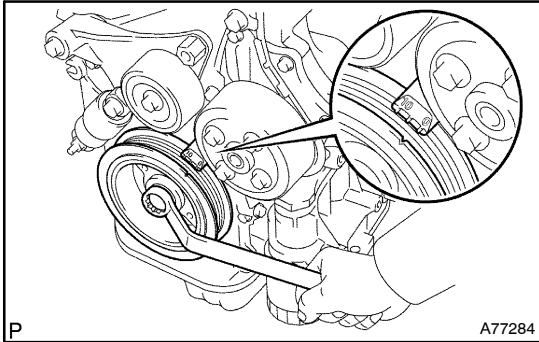
**20. INSTALL CAMSHAFT TIMING GEAR ASSY**

- (a) Put the camshaft timing gear and the camshaft together with the straight pin off the key groove.
- (b) Turn the camshaft timing gear assembly to the left direction (as shown in the illustration) while lightly pushing it toward the camshaft. Push further at the position where the pin gets into the groove.

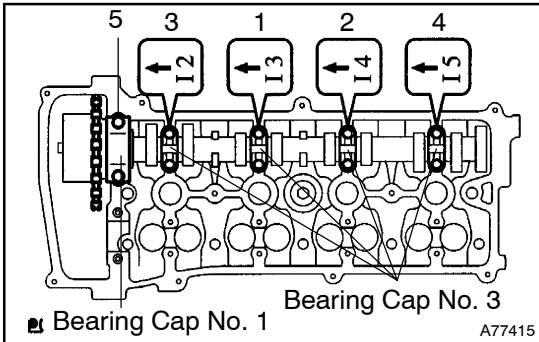
NOTICE:

Be sure not to turn the camshaft timing gear to the retard angle side (to the right direction).

- (c) Check that there is no clearance between the gear's fringe and the camshaft.
- (d) Tighten the fringe bolt with the camshaft timing gear fixed.
Torque: 54 N·m (551 kgf·cm, 40 ft·lbf)
- (e) Check that the camshaft timing gear can move to the retard angle side (to the right direction) and is locked at the most retarded position.

**21. INSTALL CAMSHAFT**

- (a) Turn the crankshaft pulley, then align its groove with the timing mark 0 of the timing chain cover.
- (b) Install the timing chain on the camshaft timing gear, with the painted links aligned with the timing marks on the camshaft timing gear.



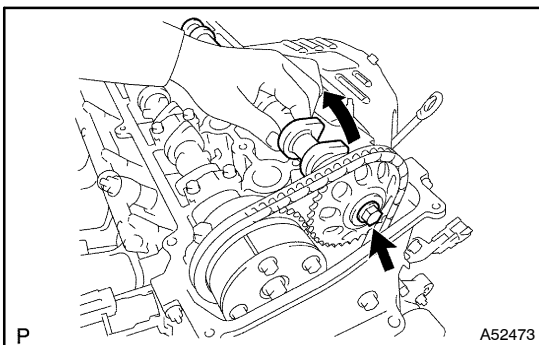
- (c) Examine the front marks and numbers, then tighten the bolts in the sequence shown in the illustration.

Torque:

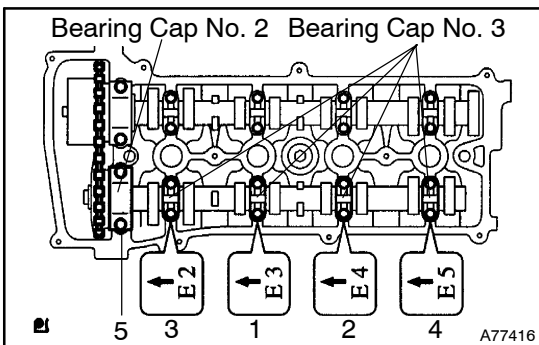
30 N·m (306 kgf·cm, 22 ft·lbf) for Bearing cap No. 1
9.0 N·m (92 kgf·cm, 80 in·lbf) for Bearing cap No. 3

22. INSTALL NO.2 CAMSHAFT

- (a) Put the No. 2 camshaft on the cylinder head with the painted links of chain aligned with the timing mark on the camshaft timing gear.



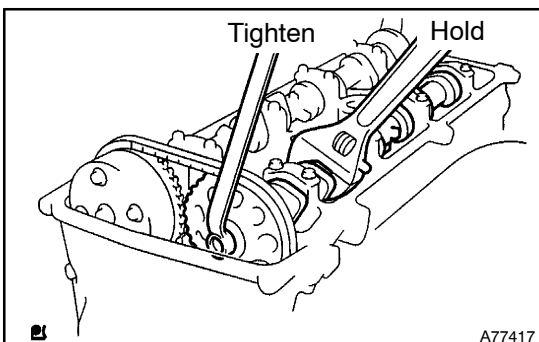
- (b) Raising the No. 2 camshaft, tighten the set bolt temporarily.



- (c) Examine the front marks and numbers, then tighten the bolts in the sequence shown in the illustration.

Torque:

30 N·m (306 kgf·cm, 22 ft·lbf) for Bearing cap No. 2
9.0 N·m (92 kgf·cm, 80 in·lbf) for Bearing cap No. 3

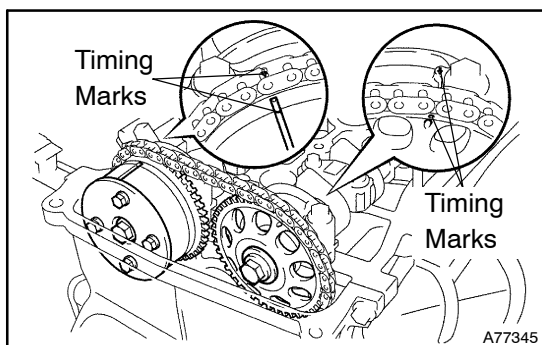


- (d) Hold the camshaft with a wrench on the hexagonal lobe, then tighten the camshaft timing gear set bolt.

Torque: 54 N·m (551 kgf·cm, 40 ft·lbf)

NOTICE:

Be careful not to damage the cylinder head and valve lifter.



- (e) Check that the match marks on the timing chain and camshaft timing gears are positioned as shown in the illustration

23. INSTALL CHAIN TENSIONER ASSY NO.1 (See page 14-41)
24. INSPECT VALVE CLEARANCE (See page 14-6)
25. INSTALL CYLINDER HEAD COVER SUB-ASSY (See page 14-41)
26. CONNECT VENTILATION HOSE NO.2
27. CONNECT VENTILATION HOSE
28. INSTALL IGNITION COIL ASSY
Torque: 9.0 N·m (92 kgf·cm, 80 in. lbf)
29. INSTALL ENGINE COVER SUB-ASSY NO.1
Torque: 9.0 N·m (92 kgf·cm, 80 in. lbf)
30. INSTALL COWL TOP PANEL SUB-ASSY OUTER (See page 10-16)
31. INSTALL WIPER LINK ASSY (See Pub. No. RM864E, page 66-9)
32. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSY
33. INSTALL FR WIPER ARM RH (See Pub. No. RM864E, page 66-9)
34. INSTALL FR WIPER ARM LH (See Pub. No. RM864E, page 66-9)
35. INSTALL FRONT WIPER ARM HEAD CAP
36. INSTALL COWL TOP VENTILATOR LOUVER CENTER NO.1
37. INSTALL FRONT WHEEL RH
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
38. CHECK FOR ENGINE OIL LEAKS
39. INSTALL ENGINE UNDER COVER RH